Nutrition News

PUBLISHED BY NATIONAL DAIRY COUNCIL - CHICAGO

MULTIPLE ORIGINS OF OBESITY

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Obesity has become a national obsession. Technical journals, newspapers, magazines, radio and television programs daily dispense a barrage of varied propaganda. Much of this campaign is ineffectual. Occasionally it is harmful, probably because it is often based on misstatements. Some of these are intentional, mercenary lures, advertising "health foods" or "thinning foods." Some are promises based on witchcraft ("eat all you want of the high calorie reducing diet and lose weight"). Other inaccuracies are more serious yet, as they emanate from respected "experts." Among such pronouncements are claims that heredity is not a factor in obesity, that glandular disturbances are practically never implicated in the development of extreme obesity, and that exercise is of no value as a reducing aid.

Two general principles dominate the study of any biological abnormality. First, the normal physiology must be at least in part made clear if abnormal deviations are to be understood. In obesity, this means that the normal physiology of regulation of food intake must be known before the reasons for overeating are found.

It is only in the last two years that a theory, yet to be independently confirmed, has accounted for some of the known facts in the workings of appetite. This theory, "glucostatic mechanism," sees the rate of phosphorylation of glucose in "feeding" centers of the midbrain as an essential aspect of appetite regulation. The theory suggests that abnormalities in carbohydrate or fat metabolism, due in particular to impaired glandular or neural functions, may intervene to modify normal functioning of the appetite.

A second essential principle is that investigation of the causes of any symptom must take into account three closely related factors; the person, the agent, and the environment. In obesity, these factors are heredity, bodily or mental injury, and environment.

That genetic factors are of paramount importance in obesity is well known to animal breeders who for centuries have selected strains of hogs, poultry, and beef cattle on the basis of distribution of fat through the animal body. Pioneer studies by human geneticists and anthropologists, such as Angel, Bauer, Rony, Siemens and others, have indicated that several genes determining obesity can be evidenced in human populations.

Recent experimental studies have dealt with hereditary obesity in dogs and in mice. One condition, the "hereditary obese hyperglycemic syndrome," characterized by extreme fat accumulation, insulin resistant hyperglycomia, hypercholesteremia and a number of other abnormalities, has received particular attention. The mechanism of its development has been partly clarified. It was possible to show that the primary metabolic happening was excessive secretion of a hitherto little known hormone of the pancreas secreted by alpha cells of the islets of Langerhans.

An example of obesity caused by bodily injury is the recently studied condition where a chain of metabolic disturbances result from surgical damage of the midbrain. Another example is one where a single injection of goldthioglucose results in the development of obesity. While the external appearance of these types of obesity is indistinguishable from genetic obesity, underlying metabolic aspects are entirely different.

Of the environmental factors, diet composition may have been overplayed and exercise underestimated. In experimental animals, dietary means alone do not induce obesity unless inherited lesions, or chemically or mechanically induced injuries are present. Immobilization, on the other hand, can be used to induce obesity in animals.

Dr. Mayer

Inactivity is an essential aspect of genetic obesity. In man, as in animals, evidence is accumulating that inactivity is not accompanied by a decrease in appetite. A recent study, conducted in Boston, shows that on the average, obese children do not eat more than their normal controls but are abnormally inactive. The cost of exercise is, in spite of misguided propaganda, the great variable in energy expenditure. Regular physical activity leads to replacement of fat tissue by muscle protein.

It may "take seven hours of wood splitting to lose a pound of fat." By the same calculation, half an hour of wood splitting a day would correspond to 26 pounds a year, and below a certain basic level exercise does not increase appetite.

That obesity is undesirable both from an esthetic and hygienic standpoint is demonstrated in life insurance statistics. But gross oversimplification, without any attempt at typing different kinds of obesity, without any search into the multiple causes of relative overeating will not lead to satisfactory and permanent cures of abnormalities of appetite and energy metabolism.

DECEMBER, 1953 • • VOLUME 17 • • NUMBER 2

Four Issues Annually — October — December — February — April

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Glances AT NUTRITION RESEARCH

Nutrition plays a role in preventive medicine and in the treatment and care of those with physiological abnormalities, and those suffering from stress, surgery, and disease. The most effective dietary treatment for the many ills to which mankind is subject remains to be revealed by research, though continuous progress is being made.

Children with Cerebral Palsy — The eating difficulties of children with cerebral palsy lead to deficient food intake and thus retard their growth and development. This was found to be true in a study of 21 children with this disease, despite careful and slow feeding of those unable to feed themselves. Total energy intake of these children was below recommended allowances for their chronological ages, as was their intake of: iron, niacin, ascorbic acid, protein, calcium, vitamin A, and thiamine. Hand x-ray revealed their skeletal development was retarded.

—Am. J. Public Health 43 :1310 (Oct.) 1953.

Diet and Premenstrual Tension — A relatively high protein diet with frequent feedings may be helpful in relieving premenstrual tension in women. Low blood sugar levels and water retention are found associated with such tension.

Thirty-nine percent of 249 women prison inmates reported improvement during this period when they were given five ounces of homogenized milk and one-half ounce of cheese between meals and before retiring during ten days preceding the expected onset of the menstrual flow. Seventy-nine percent reported improvement when medication with vitamin B-complex and ammonium chloride plus the food supplement was given. Treatment resulted in increased work output, improved behavior and attitude, and increased general morale.

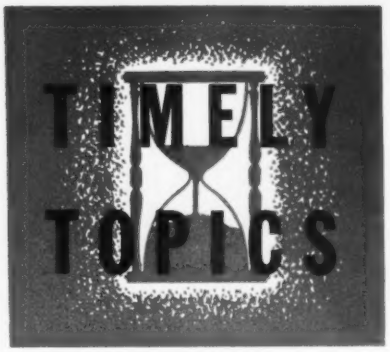
—Am. J. Obst. and Gynec. 65 :1182 (June) 1953.

Nutrition and Poliomyelitis — A high protein, high calorie diet has been credited in one institution with superior clinical results in the treatment of poliomyelitis. Patients who received nutritional therapy showed: a reduced severity of the acute phase of the disease; minimal weight loss; minimal disabling muscle atrophy and stiffening of joints; accelerated convalescence; reduced need for corrective surgery; and favorable results in restoring the functional use of affected parts of the body. Milk was used as a base for a high protein, high calorie dietary supplement, rich in riboflavin, thiamine, and other vitamins. Egg and casein powder were used to increase the protein content and fat emulsion and syrup were used to increase the calorie content of the supplement. This was added to the regular hospital diet.

—J. Clinical Nutrition 1 :355 (July-Aug.) 1953.

Diet and Acute Illness—All acutely ill patients require a higher than normal amount of protein and energy to prevent tissue loss. Surgical patients show a more positive nitrogen balance when fed via the alimentary tract than when fed by vein. However, positive nitrogen balance can be obtained with intravenous feeding when sufficient protein and calories are given and alimentation is otherwise impossible.

—J. Am. Diet. Assn. 29 :897 (Sept.) 1953.



Dr. Mayer

Dr. Jean Mayer, born in Paris, France, did undergraduate work there and holds a Ph.D. in physiological chemistry from Yale University and a D.Sc. in physiology from the Sorbonne. He served in the French Army, was a Rockefeller Foundation Fellow at Yale University, and a member of Nutrition Division of the Food and Agriculture Organization. Since 1950 he has been assistant professor of nutrition at Harvard University. He is the author of over 75 research publications.

Authenticity

The Council on Foods and Nutrition of the American Medical Association meets a need for an independent scientific body to consider questions concerning food quality, food needs, nutrition, and advertising claims. The members of the council include some of the most distinguished scientists in America. The seal and statement of acceptance of this council, on literature or advertisement, assures the reader of the authenticity of the information within present knowledge and the judgment of the 15 scientists who form this important council.

Time Lost

An estimated 45,000 persons are absent from work each day throughout the nation due to dental disease. This startling waste was reported at a recent conference on industrial programs sponsored by the Council on Dental Health of the American Dental Association. A 5-point dental health program in industry, including dental health education, was advocated.

SELLING NUTRITION VIA MODERN COMMUNICATION FACILITIES

By Thelma E. Porter, Ph.D., Coordinator
Illinois Nutrition Week

It has long been the dream of the Chicago Nutrition Association to hold a Nutrition Week. We felt that making an impression in a cosmopolitan area, required a concentrated drive which might muster to its aid many of today's dramatic means of communication. With attention focused on the significance of nutrition, it is reasonable to expect renewed interest among more individuals and groups in sensible nutrition practices and year-round programs of nutrition education. In short, we wanted to get attention and arouse concern for continued attention.

A concentration of voluntary forces is a large undertaking. This year our dream became reality, with its scope extended to encompass not only Chicago, but the state of Illinois. The week of November 15 through 21 was declared Illinois Nutrition Week. The plans for it were a joint undertaking of the Illinois Nutrition Committee and the Chicago Nutrition Association.

Committees were set up in a duplicate type of organization. Each committee had a chairman from the Illinois Nutrition Committee and one from the Chicago area.

To acquaint the professional groups throughout the state with the program, two "kick-off" meetings were held. The first was an all-state Nutrition Conference, at Decatur, Illinois, September 26, sponsored by the Illinois Nutrition Committee. In addition to two subject-matter talks, the registrants heard reports from each committee chairman on plans for Nutrition Week.

The second meeting, November 16, ushered in Nutrition Week at a luncheon given by the Chicago Nutrition Association for distinguished guests from allied professions. Dr. Conrad A. Elvehjem, University of Wisconsin, spoke on "Putting Nutrition to Work."

One committee worked with school administrators and teachers. Special nutrition projects were developed.

To publicize the program of Nutrition Week, two committees, one on publicity and one on public relations, correlated their work. Desiring to utilize every possible method of communication, it was agreed that the Publicity Committee handle the press and selected radio programs. The press included daily papers in Chicago and down state, neighborhood newspapers, industrial releases, and magazines of local associations. The Public Relations Committee made the contacts with certain television and radio programs and were responsible for originating other methods of reaching the public.

A popular half-hour television show, originating in Chicago, devoted its program on Sunday, November 15, to nutrition. Five other programs called attention to Nutrition Week.

Among other special approaches was the use of a slug which could be inserted in postal meters. As a letter was stamped it was also imprinted with the slogan, "Food First For Fitness—Illinois Nutrition Week, November 15 to 21." Six firms paid the cost of the slugs. These they used on their mail before and during Nutrition Week. Approval was obtained from the Post Office Department to place a special mark on one of their cancelling machines in the Chicago Post Office. This meant that stamped letters going through the machine carried the slogan and date of Nutrition Week.

The Restaurant Association cooperated enthusiastically in urging its members to participate. Many restaurant menus in Chicago carried notation of the observance of Nutrition Week. At the suggestion of the restaurants themselves, a "table tent" was designed and placed on the tables of restaurants throughout the city.

Some food stores and dairy companies incorporated notations on Nutrition Week in their daily advertisements. People who might miss a feature story still might see the message in planning their shopping for groceries.

The program was a constructive and stimulating experience. It will be repeated. It is anticipated that an even better Nutrition Week will be possible next year since experience this year will lead to a broader and more effective campaign of nutrition education.

SOMETHING UNUSUAL HAS HAPPENED

By James W. Armstrong, Chairman, Citizens' Health Committee
Henderson, Kentucky

Something unusual has happend in Henderson, Kentucky. A project in eating for health as well as pleasure has captured the enthusiasm of the schools and community.

It really began through one person's keen observation and persistency. Mrs. Edwina Roberts, public health nurse, finally persuaded citizens and school officials to listen when she said many pupils were not eating properly. She did not mean that children were starving, or had rickets. She meant that few were eating food adequate for full bodily requirements.

She found opportunity to prove her point when the Citizens' Health Committee acted on her observations. With sanction of the Henderson County Health Department, the committee created a survey to find facts and build a positive nutrition program.

To make sure the study would be properly conducted and accurate in its findings, the help of the State Health Department was solicited. Two pilot schools were chosen, one in the city and one in the county. With cooperation of school officials and teachers, a three day diet check was run. It was analyzed by nutritionists.

Here is what was found. Based on U.S. Department of Agriculture standards, 69 percent of the children in one school and 92 percent in the other were not eating an adequate diet.

The findings were made known to children, parents, and the public. But in addition to the publicity given to the inadequate diets, a project to develop better eating habits was set up in the two schools. Meetings were held with the teachers, methods of teaching about foods were examined, more dynamic procedures proposed. State nutritionists and local health authorities counseled with the teachers. Food tasting parties were established; rat feeding projects were introduced.

Results really began to show when

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—that Pennsylvania manufactures more ice cream than any other state?

—that the average person is getting less carbohydrate than before the war, about the same amount of vitamin A, a little more ascorbic acid and significantly more riboflavin, thiamine, niacin, iron, protein, and calcium?

—that the per capita consumption of milk in Iceland is more than double that of the United States?

—that an estimated 25 percent of the adults in this country are sufficiently overweight to result in appreciable damage to health?

—that almost 35 percent of the world's milk production is used in making butter?

—that the number of noon meals served under the National School Lunch Program has increased from less than half a billion in 1944 to over one-and-one-half billions in 1952?

—that recent surveys show rural family diets are often low in calcium and vitamins A and C—nutrients readily supplied by milk, fruits and vegetables produced right on the farm?

—that it takes about 10 pounds of milk to produce one pound of cheese, depending on the variety?

THINGS YOU'LL LIKE TO READ

Present Knowledge in Nutrition. New York: The Nutrition Foundation, Inc., 1953. $2.00.

Originally printed in the journal, Nutrition Reviews, the chapters in this monograph have been critically reviewed and edited. In its 122 pages, professionally trained people find a resumé on specific nutrients and the science of nutrition.

Sanitary Milk Control and its relation to the Sanitary, Nutritive, and Other Qualities of Milk—A.C. Dahlberg, H.S. Adams, and M.E. Held. Publication 250, National Academy of Sciences—National Research Council, Publications Office, Washington 25, D.C. 1953. Free.

Here is reported the most comprehensive research on the subject to date. The detailed study in eight selected cities has significance for health officials, the dairy industry, and the public. Each of the areas studied had a healthful milk supply of good sanitary quality. The milk sanitation regulations, however, varied considerably in extent and detail. The study was directed toward finding the basic factors in sanitary milk control.

Audio-Visual Materials—W. A. Wittich, Ph.D., and C. F. Schuller, Ph.D. New York: Harper Bros. 1953. $6.00.

This comprehensive text describes audio-visual materials and their role in improvement of instruction. Over 200 photographs and drawings are used to make the book a help to teachers and others concerned with education.

Nutrition Education in Elementary and Secondary Schools. H. S. Lockhart, Ed.M. and F. E. Whitehead, D.Sc., Harvard School of Public Health. Distributed by The Nutrition Foundation, Inc., New York. 1952. $1.00.

This 43 page publication defines research studies in nutrition education in three communities, 1944 to 1951. It diagrams and summarizes practices and philosophy. Schools, community agencies and public-minded citizens will find incentive and aid in the report.

SOMETHING UNUSUAL HAS HAPPENED

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the children themselves, backed by financial support of a teacher, began operating a fruit and vegetable snack bar. Its success grew steadily.

Food became an integrated topic in classes. The school cafeterias entered the scene. What an important part they can play in building the knowledge of children about foods they need but have not eaten!

More than superficial observations were desired. Under advice of medical consultants working with the project, blood samplings were taken of children in both schools. Eighty-eight percent of the pupils in one school and 77 percent in the other had a red corpuscle condition below normal.

What could be done to help while food habits were being improved? The steering committee recommended temporarily supplementing diets with medicinal iron. A physician donated iron pills.

In ten weeks improvements were noted. Check-ups showed that more children were drinking citrus juice, more were drinking more milk, eating more green vegetables and other iron-rich foods. One school outstripped the other with a 24 percent increase in children eating an adequate diet.

The teachers reported better classroom attention. A remarkable difference was noted in two girls in one classroom. Both had been failing in school work. One moved up to a "C" standing; the other moved up to "A."

This first work was regarded as exploratory. Teaching methods needed to be revised, techniques to be improved. A three-week summer workshop was organized. Thirty teachers attended. It was held under leadership of Murray College, with the assistance of a nutritionist from the State Health Department.

The success of this exploratory project has taken hold in the community. During this current year all public schools in the city and county have adopted a positive nutrition program. Local industries are asking questions. It pays to eat for health.